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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,585	01/04/2005	Milan Plesck	3101-PAT	2770

30084 7590 12/23/2005

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EXAMINER

FORTUNA, ANA M

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,585

Applicant(s)

PLESEK ET AL.

Examiner

Ana M. Fortuna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/13/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION***Claim Rejections - 35 USC § 112***

1. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is unclear as to whether the micropores are constant across "a section" (central section) of the membrane is intended only, since the ends are more dense, then the microporous are not maintained constant across the membrane at the ends.

Claims 2-3 are unclear regarding to the fiber middle length. In claim 4, the term "mainly propylene" is indefinite as to whether 'propylene' is intended. In claim 5, the term "-precursor-, should be "precursor". In claim 5, the term "most frequently into bundles or curtains" renders the claim unclear regarding to the fibers arrangement.

2. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the

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claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 2 recites the broad recitations 20% to 90%, 10% to 50 %, and the claim also recites 40% to 60%, and 20% to 40%, which is the narrower statement of the range/limitation.

Claim 3 also includes the broad ranges 0.1-10 m, 0.02-0.5 m, and ranges 0.5-2m, 0.1-0.2m which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kopp et al (US5,698,101)(hereinafter Kopp) in view of Culver et al (US 4,969,997)(hereinafter Kluver). Kopp discloses membrane with pores having slit-like lengthwise oriented micropores with size constant across the fiber (membrane thickness)(abstract, column 6, lines 2-5, and lines 30-54, column 7, lines 10-37). Kopp fails to disclose the hollow fiber membrane with variable density along the length and decreasing towards the ends. Kluver teaches modifying microporous membrane ends by sealing the edges to produce a fluid impermeable area at the membrane ends (abstract, column 2,

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lines 49-68, column 3, lines 1-6). Kluver teaches varying the membrane pores at the membrane edges (or ends) by versifying the pores at the membrane surface while maintaining pores at the opposite side of the membrane and setting the pores or hardening the modified membrane ends (column 3, lines 10-42), reducing the thickness of the membrane at the treated area is also disclosed, due to the high porosity of the treated area (column 4, lines 4-7). The resulting membrane in Kluver maintain its porosity, e.g. structure in the non-treated area, and modify the pore lengthwise, reduces the pores and increase density toward the ends.

It would have been obvious to one skilled in the art at the time the invention was made to modify the hollow fiber membranes of Kopp, by treating the membrane ends as suggested by Kluver, to provided hollow fibers with sealed pore at the ends to avoid fluid leakage at the sealed area when the membrane is formed into a cartridge or membrane module, a suggested by Kluver (column 5, lines 37-45), and to improve sealing tear stress (see Kluver column 6, lines 35-37).

It would have been further obvious to provide a hollow fiber membrane with sealed edges generating the claimed structure and further avoiding leakage when the fibers are potted or formed in to a module with potted ends.

Regarding claim 2, Kopp teaches the membrane with porosity greater than 50 % (column 21, lines 18-33). Kluver teaches densifying the membrane area or end to a desired depth, e.g. by setting or hardening the melted material densifying the pores at a selected depth. It would have been obvious to one skilled in the art at

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the time the invention was made to control the process at a depth, which substantially seal the pores at the selected end.

Regarding claim 3, the membrane length and selected end section to be sealed or density is depending of the size of the membrane module/ membrane surface area required for a particular membrane operation. It would have been obvious to one skilled in the art at the time the invention was made to seal a region or end section of the membrane capable to hold the membrane in place in the module, and further seal that particular area based on the art discussed above.

The membrane material of claim 4 is disclosed in Kopp teaches the membrane material as polypropylene, polyamide, PS, etc. (column 30, claim 6).

Allowable Subject Matter

5. Claim 5 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

6. The following is a statement of reasons for the indication of allowable subject matter: the process of making the membrane with the claimed structure of claim 1, by the double extension (stretching) as claimed in claim 5 is not suggested in the prior art of record.

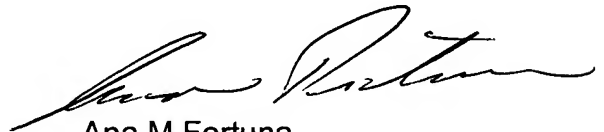
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151.

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The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

AF
December 19, 2005